UNIVERSITI TEKNOLOGI MARA

COMBINING GEOMETRIC BROWNIAN MOTION MODEL AND MULTIPLE LINEAR REGRESSION MODEL FOR PREDICTING KIJANG EMAS SELLING PRICE

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Thesis submitted in fulfillment
of the requirements for the degree of
Master of Science

Faculty of Computer and Mathematical Sciences

January 2016

CONFIRMATION BY PANEL OF EXAMINERS

I certify that a Panel of Examiners has met on 15th September 2015 to conduct the final examination of Basyirah Binti Che Mat on her Master of Science thesis entitled "Combining Geometric Brownian Motion Model and Multiple Linear Regression Model for Predicting Kijang Emas Selling Price" in accordance with Universiti Teknologi MARA Act 1976 (Akta 173). The Panel of Examiners recommends that the student be awarded the relevant degree. The Panel of Examiners was as follows:

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

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ABSTRACT

Gold is widely known as the most valuable thing in this world which leads to the securing of gold as an investment portfolio among people. In making a profitable investment, it is extremely important to have an accurate decision on the buying and selling periods. Therefore, this paper attempts to analyze the appropriate forecast method for forecasting Malaysia's own gold bullion coin selling price namely Kijang Emas. The objectives of this research are to investigate the factors that affect the fluctuation of Kijang Emas gold prices, to develop forecasting model by using Multiple Linear Regression (MLR) method according to the factors that affect the Kijang Emas gold prices and to enhance the forecasting method by combining two individual methods, Geometric Brownian Motion (GBM) and MLR method. In order to improve the accuracy of the forecast, the combination of both forecast methods is proposed and it is done by using two combinations of forecasts methods; Simple Equal Weighted Average and Inverse Mean Square Forecast Error Combination method. Then, the forecast accuracy for each method is calculated by using Mean Absolute Percentage Error (MAPE) and the last result shows that the combination of forecast with Inverse Mean Square Forecast Error Combination method gives the lowest MAPE result. Hence, this method is highly recommended to be used in forecasting Kijang Emas selling price.

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